

*Yellow*

**JAN 10 1990**

Mr. Edgar-G. Kaup, P.E.  
Case Manager  
Bureau of Federal Case Management  
New Jersey Department of Environmental Protection  
401 East State Street, CN 028  
Trenton, NJ 08625-0028

Re: L. E. Carpenter Site, Wharton, NJ  
Remedial Investigation Findings Report

Dear Mr. Kaup:

The Environmental Protection Agency (EPA) has conducted a review of the L. E. Carpenter Remedial Investigation Findings Report dated November 1989. Enclosed please find EPA's comments on the report.

Please contact me at 212-264-8098 if you have any questions concerning EPA's comments.

Sincerely yours,

Jonathan Josephs  
Chemical Engineer  
New Jersey Compliance Branch  
Emergency and Remedial Response Division

bcc: F. Luckey, PSB

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## EPA Comments

1) Contour Maps - The water level and groundwater concentration contour maps would be easier to interpret if the actual data were presented on the maps. A particular contour line, being obtained from the data by interpolation and/or extrapolation, may or may not fit the data closely. By providing the data points on the maps, the reader can more easily assess the likelihood that the actual contours are as depicted. Those contour lines which do not closely fit the data or which are based on minimal data could be mapped with dashed lines to indicate the uncertainty associated with those contour lines.

The contour maps as presently shown may present a misleading picture of site conditions. For example, Figure 20 shows two separate plumes of volatile organics in the shallow groundwater. The tank farm area (one likely source of this contamination) and well 11s (which was not sampled because it contained no water, only floating product containing volatiles) were shown as being between, but outside of, the contamination plumes. Clearly, the mapped lack of contamination of shallow groundwater in the area of well 11s is due to the method of drawing the contour lines and not due to an actual lack of contamination in the uppermost groundwater.

2) Floating Product - The nature and extent of chemicals floating on top of the water table have not been adequately addressed in the Remedial Investigation Report. No map is presented to show the extent and thickness of the floating product, although such maps have been prepared for the quarterly progress reports. Such a map should be presented.

The composition of the floating product has not been clearly defined in the RI. Page 36 of the RI states that TPH fingerprinting analysis of the sample of floating product taken from monitor well 11-s showed it to be a mixture of gasoline and lubricating oil. Where is the lab report for the TPH analysis? It should be included in this report. Has the product been analyzed for target compound list substances or priority pollutants other than hydrocarbons?

The progress reports that have been submitted to NJDEP refer to the product as xylene. This is confusing since xylene is only a minor component of gasoline and fuel oils. Are there more than one type of floating product at the site or do we not have a clear understanding of the chemicals that make up the layer of floating product?

3) The Remedial Investigation report lacks maps that show where

the site is located in the State of New Jersey or in the municipality of Wharton. Not a single topographic map has been provided as part of the RI. This lack of topographic, geographic and demographic information makes it difficult to evaluate the RI and to adequately assess how surface topography may have controlled the introduction of contaminants to the subsurface or to surface waters. In addition to an accurate topographic map, a map should be provided showing the relative location of the site to the Wharton municipal water supply wells, located 2600 feet from the site, as well as nearby residential areas. Such information is essential in selecting an appropriate remedy and/or the degree of monitoring that will be required to adequately protect residents in the vicinity of the site.

4) More information should be presented about the likely sources of the groundwater contamination. This is an essential component of the RI. If source areas such as contaminated soils, leaking storage tanks, etc., are not identified, contaminants will continue to migrate into the groundwater system. The RI must identify these potential source areas and provide the data necessary to determine if remediation of these areas is needed in order to prevent additional groundwater contamination.

For example, what is the source of the floating product and groundwater contamination at Monitor Well #1? Considering that shallow groundwater flows east, the source of the groundwater contamination detected at monitor well #1 should be located in the direction of Building 2, Building 16 or the railroad right of way. The RI should attempt to identify how such large quantities of xylene and ethyl-benzene were introduced into the groundwater system. What chemicals were stored in the various tanks on-site? Were these tanks ever tested for leaks? If so, what were the results? Are all the storage tanks empty or do they still contain chemical products? The last column of Table 1 of the RI does not clearly indicate if these tanks have been removed from site or if they are no longer being used to store chemicals.

All available information should be utilized to develop a comprehensive interpretation of contaminant source areas and the extent of contaminant migration. The following field observations should be considered in developing such an interpretation: a sheen on water at test pits #25 and #26; floating product on water at test pits #16, #30, #37; drum found at test pit #72; rusted, broken drum found at TP-4; subsurface lime green staining at TP-75; green powdery substance and rusted drum at TP-5.

5) The nature and extent of the former impoundment area has not been adequately defined. The RI should define the boundaries of this lagoon. Test pit and soil sampling results should be used

to document whether or not the soil in this area requires remediation. Did the impoundment area have overflow pipes to the river?

6) The methods and equipment used to determine groundwater elevations should be stated in the RI. All raw data measurements should be provided in the appendices before they have been corrected to mean sea level depths. The surveyed elevations of top of well casing or other relevant measurement marks should be provided along with the surveyed locations of the wells. The surface elevation of each well location should also be provided. Until this information has been provided it will be difficult to confirm the piezometric interpretations that have been presented in the RI.

7) It seems fortuitous that, although very high concentrations of volatile organics are found at the eastern boundary of the L. E. Carpenter property, the offsite wells in this area have not shown volatiles contamination. It would seem that contaminants would migrate offsite unless there were some mitigating factors. If there were such factors they should be stated. For example, could the operation of the former production well shown in Figure 1 have affected the hydraulic gradient to keep contaminants from migrating offsite? When was this well in use and what were the pumping rates?

8) Well Screen Lengths - Monitor wells one through 10 have screen lengths between 20 to 30 feet long. EPA recommends that screen lengths of no more than 10 feet be utilized for monitor wells because longer screen lengths allow the dilution of contaminated groundwater by clean water from uncontaminated portions of an aquifer. This is especially relevant to sites such as L.E. Carpenter where contaminants are concentrated at the top of the water table.

9) A summary of sampling and QA problems should be provided in the text. It is stated in the appendices that a number of volatile organic samples exceeded their holding times. However, the sample numbers are not provided. It should be stated in the text which samples were possibly effected by the exceeded holding times and therefore may have yielded lower than true volatile organic levels. The tables of sample analyses should indicate which analyses exceeded holding times.

10) The List of References should also list the many relevant documents which specifically address the L.E. Carpenter Site.

### Page Specific Comments

Page 14, Second to last paragraph - Piezometer GEI-2s is not screened across the water table as stated. Figure 16 shows that the shallow groundwater table greater than 628.2 ft above sea level. The top of GEI-2s screened interval is at 627.67 feet. Therefore, the well is screened below the water table. The screened intervals for the shallow wells 13-s, 14-s and 16-s also do not intersect the water table and therefore cannot reliably be used to monitor floating product.

Page 16, First paragraph - PID/HNU values should be annotated on the boring logs provided in Appendix C. These values would provide important additional information regarding the vertical extent of site-related contamination.

Page 16, last paragraph - It is stated that where floating product was suspected a large diameter casing was installed below the water table and the floating product then flushed from within the casing prior to drilling deeper. At which wells was this procedure carried out and at which wells was floating product indeed encountered? This information should be clearly presented in the RI.

Page 21, Aquifer Testing - The statement that the monitor wells cannot be used as efficient observation points due to their locations and depths is questionable. There is no apparent reason why these monitor wells could not be used. Also the statement that a pumping test could not be conducted because a large diameter well was needed may not be true. The four inch diameter wells would probably be sufficient to conduct a low yield pumping test if one was determined to be necessary.

Page 43, Air Sampling - No mention is made of the levels of benzene that were detected at the site during the summer months (Appendix F). Were OSHA standards for benzene exceeded?

Page 45, Geologic Cross Sections - The two cross sections have not been carefully constructed. There are numerous inconsistencies between cross sections A and B concerning the depths of wells that are shown on both cross sections, the depths to various geologic units and the figures that show the construction details of the wells. A few examples of the discrepancies are cited to illustrate the need to revise these cross sections:

a) The bottom of MW-17-d on Cross Section "A" is at an elevation of 565 feet above msl. However, Figure 9 indicates that its bottom elevation is 584 feet above msl. Furthermore, the well log description provided in the appendices does not indicate that this well penetrated three distinct geologic units

as shown. Only two geologic units are identified on the well log for this well. These cross sections must honor the data on which they are based upon.

b) The projection of MW-11-d over 350 feet to the line of cross section "A-A'" is not an acceptable method of cross section construction as it presents a misleading concept of subsurface conditions (i.e., bedrock topography).

c) MW-1 is shown as penetrating the unconsolidated sand and gravel unit with a total depth of approx. 592 feet on Cross Section "A". However, on Cross Section "B" MW-1 is not shown to be penetrating the sand and gravel unit and is not as deep.

d) The depth at which MW-11d is shown to encounter bedrock is different on Cross Sections "A" and "B".

It is not clear why it was decided not to draw the cross section lines from well to well, in segments, so that the cross sections would reflect the known subsurface conditions for particular locations. The method of projecting well information across large distances to the line of cross section produces an unreliable cross section.

Page 45 - General Geology - This section must reference appropriate USGS, State of New Jersey or other geologic investigations, local or regional, that relate to the subsurface conditions of this site. No attempt has been made to identify the major stratigraphic formations or recognized hydrogeologic units at the site.

Page 46 - Bedrock morphology - Three bedrock wells are insufficient to be able to describe the bedrock morphology as resembling "a trough like valley...that trends east southeast. If this statement is based on other information, or other regional geologic studies or interpretations, then the source(s) of this information should be referenced. If no such information is available, then the "trough like valley" theory should be presented for what it is, a theory, and not fact.

Page 46 - Type of Bedrock - The description of bedrock should be more complete: e.g., pink, tan and gray, medium to coarse grained granite with frequent oxidized, near horizontal to vertical fractures.

Page 46 - Last paragraph - How were water levels measured? Where is this data presented?